CW#3B: Distance and Absolute Value

Geometry

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TP: \_\_\_\_\_\_\_

***CLASS COPY: DO NOT WRITE ON THIS SHEET!***

The following problems all deal with distance in one way or another. Do your best to problem solve and arrive at the correct answer. Many of these problems are very difficult so expect to struggle and enjoy it!

1. Given the five numbers 8/25, 13/40, 19/60, 33/100, and 59/180, find the two that are closest together on a number line, and find the distance between them.
2. Telescope Peak in the Panamint Mountain Range, which borders Death Valley, is 11045 feet above sea level. At its lowest point, Death Valley is 282 feet below sea level. What is the vertical distance from the bottom of Death Valley to the top of Telescope Peak?
3. What is the distance between 6 and −6? between 24 and 17? between 17 and 24? between t and 4? The distance between two points is always positive. If a and b are two points on a number line, the distance is therefore either a − b or b − a, whichever is nonnegative. This is an example of an absolute-value calculation, and the result is written |a − b|. What is the meaning of |b − a|?
4. Translate the sentence “the distance between x and 12 is 20” into an equation using algebraic symbols. What are the values of x being described?
5. For each of the following points, find the distance to the y-axis: (a) (11, 7) (b) (−5, 9) (c) (4, y) (d) (x, −8)
6. Write a formula that expresses the distance between p and 17. Describe all the possible values for p if this distance is to be greater than 29.
7. On 3 January 2004, after a journey of 300 million miles, the rover Spirit landed on Mars and began sending back information to Earth. It landed only six miles from its target. This accuracy is comparable to shooting an arrow at a target fifty feet away and missing the exact center by what distance?